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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,430	08/24/2005	John D Fraser	US030011US	6066
24737 7590 01/10/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			EXAMINER WEATHERBY, ELLSWORTH	
			ART UNIT 3768	PAPER NUMBER
			MAIL DATE 01/10/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/551,430	FRASER, JOHN D	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ellsworth Weatherby	3768	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)              |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application    |
| Paper No(s)/Mail Date <u>8/24/2005</u> .   | 6) <input checked="" type="checkbox"/> Other: <u>GB 2 279743 A</u> . |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 8-9, 11, and 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hill et al. (GB 2279743A).

Hill et al. '743 teaches a method for medically treating a patient comprising the steps of: a) using imaging ultrasound to acquire an initial image of a portion of the patient's body; and b) performing, a predetermined non-zero number of times, the steps of: i) using imaging ultrasound to acquire a current image of the patient's body portion; ii) automatically comparing said current image to a previously-acquired imaging ultrasound image; iii) automatically detecting, based on the comparison, whether the body portion has moved since the previously-acquired image was acquired (abstract; pg. 4, l. 30- pg. 5, l. 10); iv) characterizing the detected motion and using it to guide the application of high intensity ultrasound (pg. 4, l. 5-29- pg. 5, l. 10; high intensity and HIFU ultrasound are readily recognized to be equally viable alternatives to one another in tissue ablation and are being regarded by the examiner as equivalents). Hill et al. '743 also teaches aiming the imaging ultrasound to track the point (pg. 3, ll. 20-23; pg. 4, ll. 5-29; col. 7, ll. 13-15). Hill et al. also teaches aiming the therapeutic and imaging

transducers at the same point and following that point as it moves (pg. 4, ll. 5-30; pg. 5, ll. 1-28).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Lu et al. (USPN 5,720,708).

5. Hill et al. teaches all the limitations of the claimed invention except for expressly teaching that the imaging and tracking are performed a plurality of times and the current images are acquired at a rate of at least two current images per second.

6. In a similar field, Lu et al. teaches speckle tracking at very high frame rates (col. 12, l. 58- col. 13, l. 19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hill et al. in view of Lu et al. The motivation to modify Hill et al. in view of Lu et al. would have been to provide maximum data for tracking and enable high imaging quality, as taught by Lu et al. (col. 13, ll. 8-14).

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Hossack et al. (USPN 5,873,830).

8. Hill et al. teaches all the limitations of the claimed invention including imaging 3D volumes within the image frames and using these as ablation targets and providing a base volume (pg. 4, ll. 5-29). Hill et al. also teaches using a doctor to halt the further performance if no target sites exist (pg. 5, ll. 23-28). Hill further teaches moving the ablation tool to other targets using the same imaging data (pg. 7, ll.1-12). However Hill et al. does not expressly teach determining whether the frame count exceeds a predetermined frame count threshold; if the threshold has not been exceeded, incrementing the frame count; and if the frame count threshold has been exceeded: determining whether a next point in the ordered set exists; if a next point exists, resetting the frame count to zero and using the next point as the point in the body portion in the ablation and tracking steps.

9. Hossack et al. teaches adjusting ultrasound imaging parameters in response to transducer or image motion which comprises the steps of measuring motion and then automatically applying imaging parameters in a region of interest in an ultrasound image in response to measured motion. Motion can be measured by measuring frame to frame motion of a sub-block of pixels between at least two ultrasound-image frames. Imaging parameters in the region of interest can be automatically applied to improve spatial or temporal resolution in response to measured motion being below or above an adjustable threshold value, respectively (col. 3, ll. 27-40; col. 6, ll. 19-29; col. 18, ll. 8-27).

10. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hill et al. in view of Hossack et al. The motivation to modify Hill et al.

in view of Hossack et al. would have been to improve tracking by using known methods to optimize the high resolution motion tracking.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Mitragotri et al. (Pub. No. 2004/0236268).

12. Hill et al. teaches all the limitations of the claimed invention except for expressly teaching that the method further includes the step of using HIFU to place in the body portion at least one ultrasonically high-contrast marker for use in making the comparison.

13. Mitragotri et al. teaches that ultrasound is well known to aid in transdermal drug delivery applications [0009-0010].

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hall et al. in view of Mitragotri et al. The motivation to modify Hall et al. in view of Mitragotri et al. would have been to further improve imaging without additional hardware.

15. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Hossack et al. and Redding (Pub. No. 2002/0156415).

16. Hill et al. teaches all the limitations of the claimed invention except for expressly teaching a timer. Hill et al. also does not expressly teach determining whether the frame count exceeds a predetermined frame count and determining whether a next point in

the ordered set exists and if a next point exists, tracking the next point if the next point exists and if the processor has detected body motion.

17. Hossack et al. teaches adjusting ultrasound imaging parameters in response to transducer or image motion which comprises the steps of measuring motion and then automatically applying imaging parameters in a region of interest in an ultrasound image in response to measured motion. Motion can be measured by measuring frame to frame motion of a sub-block of pixels between at least two ultrasound-image frames. Imaging parameters in the region of interest can be automatically applied to improve spatial or temporal resolution in response to measured motion being below or above an adjustable threshold value, respectively (col. 3, ll. 27-40; col. 6, ll. 19-29; col. 18, ll. 8-27).

18. Hossack et al. does not expressly teach a timer to control the image frame acquisitions.

19. Redding teaches a microprocessor coupled with an EEPROM, a timer unit, and a waveform generator may be used to provide for programmability and time-dependent operation of the transdermal drug delivery system [0043]. Redding further explains that a timer termed a control unit [0043].

20. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hill et al. in view of Hossack et al and Redding. The motivation to modify Hill et al. in view of Hossack et al. and Redding would have been to controllably improve tracking by using known methods to optimize the high resolution motion tracking.

21. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Hossack et al. and Redding as applied to claim 12 above, and further in view of Lu et al..

22. Hill et al. in view of Hossack et al. and Redding teaches all the limitations of the claimed invention except for expressly teaching that the imaging and tracking are performed a plurality of times and the current images are acquired at a rate of at least two current images per second.

23. In a similar field, Lu et al. teaches speckle tracking at very high frame rates (col. 12, l. 58- col. 13, l. 19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hill et al. in view of Hossack et al. and Redding and further in view of Lu et al. The motivation to modify Hill et al. in view of Lu et al. would have been to provide maximum data for tracking and enable high imaging quality, as taught by Lu et al. (col. 13, ll. 8-14).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellsworth Weatherby whose telephone number is (571) 272-2248. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571) 272-4740. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EW

A handwritten signature in black ink, appearing to be 'B. L. L.' or similar, located in the lower right quadrant of the page.